Claims

What is claimed is:

1. A method of processing a plurality of programs for transmission in a communication system, the method comprising the steps of:

determining a value of a criticality measure for each of at least a subset of the programs; and

allocating available bits to the programs based at least in part on the values of the criticality measures, such that a program with a criticality measure having a particular value in a designated time interval is allocated a different percentage of the available bits for that interval than another one of the programs with a criticality measure having a different value.

2. The method of claim 1 wherein at least a subset of the plurality of programs are audio programs.

3. The method of claim 1 further including the steps of processing a bit allocation request for each of a plurality of encoders, wherein each of the encoders encodes a corresponding one of the programs, and generating an actual bit allocation for each of the plurality of encoders.

4. The method of claim 3 wherein the bit allocation request from a given one of the N programs includes: (i) an actual bit demand for perceptual coding of the audio information of the given program in a designated time interval; and (ii) a value of the criticality measure as determined for the designated time interval.

5. The method of claim 1 wherein the determining step includes determining a value of a criticality flag for each of the programs.

6. The method of claim 5 wherein at least one of the criticality flags is a single-bit criticality flag the value of which indicates the presence or absence of at least one of an onset and a transient in the corresponding program.

7. The method of claim 5 wherein at least one of the criticality flags is a linear criticality flag having a value characterizing a designated quality of the corresponding program.

8. The method of claim 7 wherein the linear criticality flag can take on one of at least three possible values, including a first value indicating stationary low-complexity audio, a second value indicating stationary higher-complexity audio, and a third value indicating presence of at least one of an onset or transient.

9. The method of claim 1 wherein the determining and allocating steps are repeated for each of a plurality of frames of information bits.

10. An apparatus for use in processing a plurality of programs for transmission in a communication system, the apparatus comprising:

a joint multiple program coder operative to determine a value of a criticality measure for each of at least a subset of the programs, and to allocate available bits to the programs based at least in part on the values of the criticality measures, such that a program with a criticality measure having a particular value in a designated time interval is allocated a different percentage of the available bits for that interval than another one of the programs with a criticality measure having a different value.

11. The apparatus of claim 10 wherein at least a subset of the plurality of programs are audio programs.

12. The apparatus of claim 10 wherein the joint multiple program coder is further operative to process a bit allocation request for each of a plurality of encoders, wherein each of the encoders encodes a corresponding one of the programs, and to generate an actual bit allocation for each of the plurality of encoders.

13. The apparatus of claim 12 wherein the bit allocation request from a given one of the N programs includes (i) an actual bit demand for perceptual coding of the audio information of the given program in a designated time interval; and (ii) a value of the criticality measure as determined for the designated time interval.

14. The apparatus of claim 10 wherein the joint multiple program encoder is further operative to determine a value of a criticality flag for each of the programs.

15. The apparatus of claim 14 wherein at least one of the criticality flags is a single-bit criticality flag the value of which indicates the presence or absence of at least one of an onset and a transient in the corresponding program.

16. The apparatus of claim 14 wherein at least one of the criticality flags is a linear criticality flag having a value characterizing a designated quality of the corresponding program.

17. The apparatus of claim 16 wherein the linear criticality flag can take on one of at least three possible values, including a first value indicating stationary low-complexity audio, a second value indicating stationary higher-complexity audio, and a third value indicating presence of at least one of an onset or transient.

18. The apparatus of claim 10 wherein the joint multiple program coder is further operative to repeat the determination and allocation operations for each of a plurality of frames of information bits.

19. A method of processing a plurality of programs for transmission in a communication system, the method comprising the step of:

allocating available bits to the programs based at least in part on corresponding criticality measures, such that a program with a particular criticality measure in a given time interval

is allocated a greater percentage of the available bits for that interval than another one of the programs with a different criticality measure.

20. An apparatus for use in processing a plurality of programs for transmission in a communication system, the apparatus comprising:

a joint multiple program coder operative to allocate available bits to the programs based at least in part on corresponding criticality measures, such that a program with a particular criticality measure in a given time interval is allocated a greater percentage of the available bits for that interval than another one of the programs with a different criticality measure.